WHAT IS CLAIMED IS:

1. A continuous method for preparing acoustical panel comprising:

forming a mixture comprising water, foaming agent, and calcined gypsum;

casting the mixture in a continuous ribbon;

maintaining the ribbon under conditions sufficient for the calcined gypsum to form an interlocking matrix of set gypsum;

cutting the ribbon to form wet acoustical panel precursor; and

drying the wet panel precursor to form acoustical panel, wherein acoustical panel has a Normal Incident Sound Absorption of at least about 0.32, according to a modified ASTM E 1050-98.

2. The method of claim 1, wherein the mixture comprises cellulosic fiber.

3. The method of claim 2, wherein the cellulosic fiber is paper fiber.

4. The method of claim 2, wherein the amount of cellulosic fiber is from about 1% to about 12% by weight of the solids content in the mixture.

5. The method of claim 2, wherein the cellulosic fiber has an average fiber length of less than about 2 mm.

6. The method of claim 1, wherein the mixture comprises lightweight aggregate.

7. The method of claim 6, wherein the lightweight aggregate is expanded polystyrene.

8. The method of claim 6, wherein the lightweight aggregate has an average particle size of from about 0.5 mm to about 5 mm.

9. The method of claim 6, wherein the lightweight aggregate has a bulk density of from about 0.2 lb/ft^3 to about 0.3 lb/ft^3.

10. The method of claim 6, wherein the amount of lightweight aggregate is from about 0.2% to about 35% by weight of the solids content in the mixture.

11. The method of claim 1, wherein the mixture comprises binder.

12. The method of claim 11, wherein the binder is selected from the group consisting of starch, latex, and combinations thereof.

13. The method of claim 12, wherein the latex is selected from the group consisting of an acrylic compound, polyvinyl acetate, styrene butadiene, and combinations thereof.

14. The method of claim 12, wherein the starch is migrating.

15. The method of claim 12, wherein the starch is non-migrating.

16. The method of claim 12, wherein the starch comprises a combination of migrating starch and non-migrating starch.

17. The method of claim 11, wherein the amount of binder is from about 0.5% to about 5% by weight of the solids content in the mixture.

18. The method of claim 1, wherein the mixture is substantially free of mineral wool.

19. The method of claim 1, wherein a face sheet is applied on the mixture.

20. The method of claim 1, wherein the amount of calcined gypsum is from about 50% to about 95% by weight of the solids content of the mixture.

21. The method of claim 1, wherein the mixture comprises water reducing agent.

22. The method of claim 21, wherein the water reducing agent is selected from the group consisting of naphthalene sulfonates, polycarboxylate compounds, melamine compounds, and combinations thereof.

23. The method of claim 21, wherein the amount of water reducing agent is from about 0.2% to about 1.5% by weight of the solids content in the mixture.

24. The method of claim 1, wherein the foaming agent forms foam void open cell.

25. The method of claim 24, wherein the foaming agent is characterized by the formula

$$[CH_3(CH_2)_xCH_2(OCH_2CH_2)_YOSO_3] \ominus M+$$

wherein X is a number from 2 to 20, Y is a number from 0 to 10 and is greater than 0 in at least 50 weight percent of the foaming agent, and M is a cation, and combinations thereof.

26. The method of claim 24, wherein the amount of foaming agent used in forming the mixture is from about 0.005% to about 0.4% by weight of the solids content of the mixture.

27. The method of claim 1, wherein the mixture comprises an accelerator.

28. The method of claim 27, wherein the accelerator comprises calcium sulfate dihydrate.

29. The method of claim 27, wherein the amount of accelerator used in forming the mixture is from about 1% to about 15% by weight of the solids content of the mixture.

30. The method of claim 1, wherein the mixture comprises an enhancing material selected from the group consisting of an ammonium polyphosphate having 500-3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate

compound, a hexametaphosphate compound, and combinations thereof.

31. The method of claim 30, wherein the enhancing material is sodium trimetaphosphate.

32. The method of claim 30, wherein the amount of enhancing material is from about 0.004% to about 2% by weight of the solids content of the mixture.

33. The method of claim 1, wherein the ribbon before drying has a maximum density of about 53 lb/ft^3.

34. The method of claim 1, wherein the weight ratio of water to calcined gypsum in the mixture is from about 0.5:1 to about 1.5:1.

35. The method of claim 1, further comprising applying a forming plate or forming rollers to the mixture as it is cast in the continuous ribbon.

36. The method of claim 35, wherein the forming plate is a fluidization membrane.

37. The method of claim 35, wherein the forming plate is a vibrating plate.

38. The method of claim 1, wherein the mixture is cast directly or indirectly onto a backing sheet.

39. The method of claim 38, wherein the mixture for forming the acoustical layer is cast directly on the backing sheet.

40. The method of claim 38, wherein the backing sheet is formed from a material selected from the group consisting of non-woven glass face, metallic foil, paper, a laminate comprising paper and a metallic foil, and combinations thereof.

41. The method of claim 38, further comprising applying a densified layer precursor, comprising calcined gypsum and water, on the backing sheet.

42. The method of claim 41, wherein the densified layer, when cured, has a density of at least about 35 lbs/ft^3.

43. The method of claim 41, further comprising applying a scrim layer on the densified layer.

44. The method of claim 43, wherein the scrim layer is selected from the group consisting of paper, non-woven fiberglass, woven fiberglass, synthetic fiber, and combinations thereof.

45. A continuous method for preparing acoustical panel comprising:

providing a backing sheet;

forming a first mixture comprising (a) water, (b) calcined gypsum, and (c) foaming agent, and optionally one or more of the following: (d) cellulosic fiber, (e) lightweight aggregate, (f) binder, (g) accelerator, (h) water reducing agent, and (i) enhancing material selected from the group consisting of an ammonium polyphosphate

having 500-3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate compound, a hexametaphosphate compound, and combinations thereof;

forming a second mixture comprising (a) water, and (b) calcined gypsum, and optionally one or more of the following ingredients: (c) cellulosic fiber, (d) lightweight aggregate, (e) binder, (f) accelerator, (g) water reducing agent, and (h) an enhancing material selected from the group consisting of an ammonium polyphosphate having 500-3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate compound, a hexametaphosphate compound, and combinations thereof;

casting the second mixture onto the backing sheet to form a densified layer precursor;

casting the first mixture as an acoustical layer precursor onto the densified layer precursor to form a continuous ribbon;

maintaining the ribbon under conditions sufficient for the calcined gypsum in each of the densified layer precursor and the acoustical layer precursor to form an interlocking matrix of set gypsum;

cutting the ribbon to form wet acoustical panel precursor; and

drying the wet panel precursor to form the acoustical panel, wherein the acoustical panel has a Normal Incident Sound Absorption of at least about 0.32, according to a modified ASTM E 1050-98.

46. The method of claim 45, further comprising applying a scrim layer onto the densified layer precursor.

47. The method of claim 46, wherein the scrim layer is selected from the group consisting of paper, non-woven fiberglass, woven fiberglass, synthetic fiber, and combinations thereof.

48. The method of claim 45, wherein the first mixture comprises:

(a) from about 50% to about 150% water;

(b) from about 50% to about 95% calcined gypsum;

(c) from about 1% to about 12% cellulosic fiber;

(d) from about 0.2% to about 35% lightweight aggregate;

(e) from about 0.5% to about 5% binder;

(f) from about 0.005% to about 0.4% foaming agent;

(g) from about 1% to about 15% accelerator;

(h) from about 0.2% to about 1.5% water reducing agent; and

(i) from about 0.004% to about 2% enhancing material, wherein the foregoing amounts are by weight of the solids content in the mixture.

49. The method of claim 45, wherein the cellulosic fiber is paper fiber and the lightweight aggregate is expanded polystyrene.

50. The method of claim 45, wherein the second mixture further comprises foaming agent, the method further comprising beating the second mixture to minimize formation of foam voids.

51. An acoustical panel comprising:

acoustical layer comprising an interlocking matrix of set gypsum and an additive selected from the group consisting of cellulosic fiber and lightweight aggregate, and combinations thereof, wherein the panel has a Normal Incident Sound Absorption of at least about 0.32, according to a modified ASTM E 1050-98.

52. The acoustical panel of claim 51, wherein the cellulosic fiber is paper fiber.

53. The panel of claim 51, wherein the cellulosic fiber is present in an amount of from about 1% to about 12% by weight of the acoustical layer.

54. The panel of claim 51, wherein the lightweight aggregate is expanded polystyrene.

55. The acoustical panel of claim 54, wherein the expanded polystyrene is a chopped expanded polystyrene.

56. The panel of claim 51, wherein the lightweight aggregate is present in an amount of from about 0.2% to about 35% by weight of the acoustical layer.

57. The panel of claim 51, wherein the panel has a surface hardness of at least about 100 psi, according to ASTM C367-99.

58. The panel of claim 51, wherein the panel has a Class A flame spread according to ASTM E 84-01.

59. The panel of claim 51, wherein the panel has a flexural strength of at least about 100 psi, according to ASTM C367-99.

60. The panel of claim 51, wherein the cellulosic fibers have an average fiber length of less than about 2 mm.

61. The panel of claim 51, wherein the voids in the panel have an average maximum diameter of about 2 mm or less.

62. The panel of claim 51, wherein the panel has a density of from about 14 lb/ft^3 to about 24 lb/ft^3.

63. The panel of claim 51, wherein the panel is substantially free of mineral wool.

64. The panel of claim 51, wherein the acoustical layer further comprises an enhancing material selected from the group consisting of an ammonium polyphosphate having 500-3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate compound, a hexametaphosphate compound, and combinations thereof.

65. The panel of claim 51, wherein the acoustical layer further comprises binder.

66. The panel of claim 51, further comprising a backing sheet for supporting the acoustical layer.

67. The panel of claim 66, wherein the backing sheet is selected from the group consisting of non-woven glass face, metallic foil, paper, a laminate comprising paper and a metallic foil, and combinations thereof.

68. The panel of claim 66, wherein the acoustical layer is disposed directly on the backing sheet.

69. The panel of claim 66, further comprising a densified layer, wherein the densified layer is disposed between the backing sheet and the acoustical layer, wherein the densified layer comprises an interlocking matrix of set gypsum, and wherein the densified layer has a density of at least about 30 lbs/ft^3.

70. The panel of claim 69, further comprising a face sheet disposed on the acoustical layer..

71. The panel of claim 69, further comprising a scrim layer disposed between the densified layer and the acoustical layer.

72. The panel of claim 71, wherein the scrim layer is selected from the group consisting of paper, non-woven fiberglass, woven fiberglass, synthetic fiber, and combinations thereof.

73. An acoustical panel comprising:

acoustical layer comprising (a) an interlocking matrix of set gypsum, and (b) an enhancing material selected from the group consisting of an ammonium polyphosphate having 500-3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate compound, a hexametaphosphate compound, and combinations thereof, wherein the panel has voids therein, and wherein the panel has a Noise Reduction Coefficient of at least about 0.5, according to ASTM C 423-02.

74. The panel of claim 73, further comprising a backing sheet for supporting the acoustical layer.

75. The panel of claim 74, wherein the backing sheet is selected from the group consisting of non-woven glass face, metallic foil, paper, a laminate comprising paper and a metallic foil, and combinations thereof.

76. The panel of claim 74, wherein the acoustical layer is disposed directly on the backing sheet.

77. The panel of claim 74, further comprising a densified layer, wherein the densified layer is disposed between the backing sheet and the acoustical layer, wherein the densified layer comprises an interlocking matrix of set gypsum, and wherein the densified layer has a density of at least about 30 lbs/ft^3.

78. The panel of claim 77, further comprising a face sheet disposed on the acoustical layer..

79. The panel of claim 76, further comprising a scrim layer disposed between the densified layer and the acoustical layer.

80. The panel of claim 79, wherein the scrim layer is selected from the group consisting of paper, non-woven fiberglass, woven fiberglass, synthetic fiber, and combinations thereof.

81. An acoustical panel comprising (a) acoustical layer comprising (i) an interlocking matrix of set gypsum (ii) cellulosic fiber, and (iii) lightweight aggregate, and optionally one or more of the following ingredients: (iv) binder, (v) foaming agent, (vi) accelerator, (vii) water reducing agent, and (viii) an enhancing material selected from the group consisting of an ammonium polyphosphate having 500-

3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate compound, a hexametaphosphate compound, and combinations thereof; (b) a backing sheet for supporting the acoustical layer; and (c) a densified layer disposed between the backing sheet and the acoustical layer wherein the panel has a Normal Incident Sound Absorption of at least about 0.32, according to a modified ASTM E 1050-98.

82. The panel of claim 81, wherein the backing sheet is formed from a material selected from the group consisting of vinyl, woven or nonwoven cloth, woven or nonwoven fabric, paper, a laminate comprising paper and a metallic foil, and combinations thereof.

83. The panel of claim 81, further comprising a face sheet disposed on the acoustical layer..

84. The panel of claim 81, further comprising a scrim layer disposed between the densified layer and the acoustical layer.

85. The panel of claim 84, wherein the scrim layer is selected from the group consisting of paper, non-woven fiberglass, woven fiberglass, synthetic fiber, and combinations thereof.

86. The panel of claim 81, wherein the acoustical layer comprises:

(a) from about 50% to about 95% of the interlocking matrix of set gypsum;

(b) from about 1% to about 12% of cellulosic fiber;

(c) from about 0.2% to about 35% of lightweight aggregate;

(d) from about 0.5% to about 10% of binder;

(e) from about 0.003% to about 0.4% of foaming agent;

(f) from about 1% to about 15% accelerator;

(g) from about 0.2% to about 1.5% water reducing agent; and

(h) from about 0.004% to about 2% of enhancing material, wherein the foregoing amounts are by weight of the acoustical layer.

87. A panel comprising acoustical layer comprising (a) an interlocking matrix of set gypsum, (b) cellulosic fiber, and (c) lightweight aggregate, and optionally one or more of the following ingredients: (d) binder, (e) foaming agent, (f) accelerator, (g) water reducing agent, and (h) an enhancing material selected from the group consisting of an ammonium polyphosphate having 500-3000 repeating phosphate units, a trimetaphosphate compound, a tetrametaphosphate compound, a hexametaphosphate compound, and combinations thereof, wherein the panel has voids therein, wherein the voids in the panel have an average maximum diameter of about 2 mm or less.

88. The panel of claim 87, further comprising a backing sheet for supporting the acoustical layer.

89. The panel of claim 88, wherein the backing sheet is selected from the group consisting of non-woven glass face, metallic foil, paper, a laminate comprising paper and a metallic foil, and combinations thereof.

90. The panel of claim 88, wherein the acoustical layer is disposed directly on the backing sheet.

91. The panel of claim 87, further comprising a densified layer, wherein the densified layer is disposed between the backing sheet and the acoustical layer.

92. The panel of claim 91, further comprising a face sheet disposed on the acoustical layer..

93. The panel of claim 91, further comprising a scrim layer disposed between the densified layer and the acoustical layer.

94. The panel of claim 93, wherein the scrim layer is selected from the group consisting of paper, non-woven fiberglass, woven fiberglass, synthetic fiber, and combinations thereof.

95. The panel of claim 87, wherein the acoustical layer, prior to curing, comprises:

(a) from about 50% to about 95% of the interlocking matrix of set gypsum;

(b) from about 1% to about 12% cellulosic fiber;

(c) from about 0.2% to about 35% lightweight aggregate;

(d) from about 0.5% to about 10% binder;

(e) from about 0.003% to about 0.4% foaming agent;

(f) from about 1% to about 15% accelerator;

(g) from about 0.2% to about 1.5% water reducing agent; and

(h) from about 0.004% to about 2% enhancing material, wherein the foregoing amounts are by weight of the acoustical layer.